Remarks

Upon entry of the foregoing amendment, claims 6-9 are pending in the application, with claim 6 being the independent claim. Claims 1-5 are cancelled.

Support for the amendments to claim 6 is found throughout the specification and in the originally filed claim 2. Support for the amendments to claim 7 is found in the specification on page 3, lines 29 and 31. These amendments add no new matter and their entry is respectfully requested.

Based on the amendments made to the claims and following remarks, Applicants respectfully request that the Examiner reconsider all outstanding rejections and that they be withdrawn.

I. The Invention

Upon entry of the foregoing amendment, the pending claims recite a combination comprising three specific fungicidally active compounds, trifloxystrobin, prothioconazole and tebuconazoles, at specific ratios, which possesses a synergistic effect.

II. Rejections under 35 U.S.C. § 103(a)

The Examiner rejected previously presented claims 6-9 under 35 U.S.C. § 103(a) as being unpatentable over Isenring *et al.*, (U.S. Patent No. 6,407,100) and Jautelat *et al.* (U.S. Patent No. 5,789,430).

Applicants reiterate that for the reasons detailed in Applicants' Replies of May 1, 2006, October 26, 2006, May 16, 2007, and August 22, 2007, the Examiner has not established a *prima facie* case of obviousness against claims 6-9, particularly in light of the amendment to the claims.

The cited references do not disclose or teach the presently claimed three-compound combination that possesses a synergistic effect, much less the recited ratios of trifloxystrobin to prothioconazole, and trifloxystrobin to tebuconazole. Thus, neither the combination nor its recited ratio of active compounds is obvious in view of the cited art.

III. Synergistic Effect

A. Data in the Specification

According to the Examiner, the data in the specification on page 11 does not show a synergistic effect because "[t]he difference in synergistic efficacy 78 and compound of formula 1 [trifloxystrobin] (efficacy 67) does not represent synergism." Office Action, p. 4. Applicants respectfully traverse for the same reasons stated in "Arguments to Accompany the Pre-Appeal Brief Request for Review," submitted on January 17, 2008.

First, the Examiner's methodology/calculation applied in determining synergism or a lack thereof is inconsistent with the definition of synergism provided by the Examiner. According to the Examiner, synergism means "the combined action of two or more agents . . . that is greater than the sum of the action of one of the agents used alone." Office Action, p. 9, citing *In re Luvisi et al.*, 144 USPQ 646. However, the Examiner compared the efficacy of the combination (78%) with the efficacy of trifloxystrobin (67%), one of the three components of the combination. The Examiner ***should have*** compared the efficacy of the combination (78%) with the ***sum*** of the efficacy (48%) of three fungicides at the same application rate as required by the Examiner's own definition of synergism. Thus, the Examiner has erred in analyzing the data in the specification.

The data on page 11 in the specification shows that when the *Pyrenophora teres* infested barley plants are treated with trifloxystrobin, prothioconazole or tebuconazole ***individually*** at an application rate of 100 g/ha, trifloxystrobin, prothioconazole and tebuconazole have an efficacy of 67%, 56% and 22%, respectively. When the infested barley plants are treated with ***a combination*** of trifloxystrobin, prothioconazole and tebuconazole at an application rate of 100 g/ha (containing trifloxystrobin 35 g/ha, prothioconazole 30 g/ha and tebuconazole 35 g/ha), the combination has an efficacy of ***78%***.

Assuming a linear dose-response correlation, when acting alone at an application rate of 35 g/ha, trifloxystrobin has an expected efficacy of 23% [(35/100) x 67%]; when acting alone at an application rate of 30 g/ha, prothioconazole has an expected efficacy of 17% [(30/100) x 56%]; and when acting alone at an application rate of 35 g/ha, tebuconazole has an expected efficacy of 8% [(35/100) x 22%]. The sum of the ***expected efficacy*** of the three components acting alone at the application rate of 35 g/ha of trifloxystrobin, 30 g/ha of prothioconazole and 35 g/ha of tebuconazole is ***48%*** (23% + 17% + 8% = 48%).

Because the combination has an efficacy of ***78%***, whereas the sum of the expected efficacy of the three components of the combination acting alone is only ***48%***, the data in the specification on page 11 shows synergistic effect of the claimed combination.

Alternatively, and in addition to the mathematical calculation of synergistic effect presented above, the synergistic effect of the present invention can be explained as follows:

The data on page 11 in the specification shows that when acting alone at an application rate of 100 g/ha, each individual component of the combination, trifloxystrobin, prothioconazole and tebuconazole has an efficacy of 67%, 56% and 22%, respectively. Therefore, trifloxystrobin, with an efficacy of 67% at 100 g/ha, is the most effective fungicide in the combination.

While keeping the same application rate of 100 g/ha, but substituting 65 g of the most potent trifloxystrobin (67%) with 30 g of less potent prothioconazole (56%) and 35 g of much less potent tebuconazole (22%), the resulting three-component combination has an efficacy of 78%, much greater than that of even the most effective fungicide trifloxystrobin (67%) used alone at 100 g/ha. The improved efficacy can only be the result of a synergistic effect between the three components because in the absence of a synergistic effect, the resulting three-component combination would be expected to be less effective than that of trifloxystrobin (67%) used alone. Therefore, the data in the specification on page 11 shows synergistic effect of the claimed combination.

B. Side by Side Comparison

According to the Examiner, the data in the specification on page 11 does not show a synergistic effect because "[t]he data presented in the specification is not a isde [sic] by side comparison. The amounts g/ha is 100 for the compounds (I), (II) and (III) when there [sic] individual efficacies has been observed. However, when synergism according to present invention was calculated the amounts were 35+30+35. The ratios as disclosed are 10:8.5:10." Office Action, p. 6. Applicants respectfully traverse for the same reasons stated in "Arguments to Accompany the Pre-Appeal Brief Request for Review," submitted on January 17, 2008.

Even though each component of the combination is not "tested" individually at the rate at which it appears in the combination, Applicants have demonstrated that assuming a linear dose-response correlation, the efficacy of trifloxystrobin at 35 g/ha is 35/100 of the efficacy at 100 g/ha, or 35/100 x 67% = 23%. Likewise, the efficacy of prothioconazole at 30 g/ha is 30/100 of the efficacy at 100 g/ha, or 30/100 x 56% = 17%, and the efficacy of tebuconazole at 35 g/ha is 35/100 of the efficacy at 100 g/ha, or 35/100 x 22% = 8%. Thus, contrary to the Examiner's assertion, Applicants have been making "a side by side comparison," i.e., trifloxystrobin 35 g/ha + prothioconazole 30 g/ha + tebuconazole 35 g/ha (35+30+35) in the combination versus trifloxystrobin 35 g/ha, prothioconazole 30 g/ha and tebuconazole 35 g/ha used alone (35:30:35).

C. Data in Dahmen's Declaration

The Examiner acknowledged that example 2 in Dr. Dahmen's declaration shows the synergistic effect of the claimed combination. The Examiner found that example 1 in Dr. Dahmen's declaration does not show synergistic effect. The Examiner concluded that "the data presented in the specification and in the declaration does not commensurate to the scope of claimed subject matter and does not show any synergism." Office Action, p. 6. Applicants respectfully traverse for the reasons stated above and in "Arguments to Accompany the Pre-Appeal Brief Request for Review," submitted on January 17, 2008. In order to expedite prosecution, Applicants have amended claims 6 and 7 to recite the ratios of active compounds trifloxystrobin to prothioconazole, and trifloxystrobin to tebuconazole in the claimed combination.

D. Colby formula

The Examiner questioned the validity of the Colby formula, citing *Ex parte Quadranti*. Office Action, pgs. 6 and 7. As quoted by the Examiner, the court in *Ex*

parte Quadranti stated that "[t]here is no single, appropriate test for determining whether synergism has been demonstrated for chemical combination, rather, factors show in each case must be analyzed to determine whether chosen method has clearly and convincingly demonstrated existence of synergism or unobvious result." Office Action, p. 7. For the present invention, Applicants have clearly demonstrated synergism for the claimed combination by using multiple methods. Applicants' showing of synergism does not depend on the validity of the Colby formula alone.

Conclusion

All of the stated grounds of objection and rejection have been properly traversed, accommodated, or rendered moot. Applicants therefore respectfully request that the Examiner reconsider all presently outstanding objections and rejections and that they be withdrawn. Applicants believe that a full and complete reply has been made to the outstanding Office Action and, as such, the present application is in condition for allowance. If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

Prompt and favorable consideration of this Amendment and Reply is respectfully requested.

Respectfully submitted,

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